

## Rogers Corporation R04835 Hydrocarbon Ceramic Laminate, Improved Oxidation Resistance

Category : Polymer , Thermoset

### Material Notes:

**Features and Benefits:** Significantly improved oxidation resistance compared to typical thermoset microwave materials  
Designed for performance sensitive, high volume applications  
Low loss - Excellent electrical performance allows application with higher operating frequencies  
Tight dielectric constant tolerance - Controlled impedance transmission lines  
Lead free process compatible - no blistering or delamination  
Low Z-axis expansion - reliable plated through holes  
Low in-plane expansion coefficient - Remains stable over an entire range of circuit processing temperatures  
**Typical Applications:** Automotive radar sensors  
Point-to-point microwave  
Power amplifiers  
Phased - Array Radar  
RF Components  
Information provided by Rogers Corporation.

Order this product through the following link:

[http://www.lookpolymers.com/polymer\\_Rogers-Corporation-R04835-Hydrocarbon-Ceramic-Laminate-Improved-Oxidation-Resistance.php](http://www.lookpolymers.com/polymer_Rogers-Corporation-R04835-Hydrocarbon-Ceramic-Laminate-Improved-Oxidation-Resistance.php)

Physical Properties	Metric	English	Comments
Density	1.92 g/cc	0.0694 lb/in <sup>3</sup>	ASTM D792
Moisture Absorption at Equilibrium	0.050 % @Temperature 50.0 °C, Time 173000 sec	0.050 % @Temperature 122 °F, Time 48.0 hour	immersion; 0.06 in thick; ASTM D570
Thickness	168 - 1520 microns	6.60 - 60.0 mil	Range of available thicknesses

Mechanical Properties	Metric	English	Comments
Tensile Strength	136 MPa	19700 psi	Y direction; RT; ASTM D638
Tensile Modulus	7.777 GPa	1128 ksi	Y direction; RT; ASTM D638
Flexural Strength	186 MPa	27000 psi	IPC-TM-650, 2.4.4
Peel Strength	0.877 kN/m	5.00 pli	Copper; 1 oz. EDC post Solder Float; IPC-TM-650 2.4.8

Thermal Properties	Metric	English	Comments
CTE, linear	9.00 µm/m-°C @Temperature -55.0 - 288 °C	5.00 µin/in-°F @Temperature -67.0 - 550 °F	Y-Direction; ASTM D3386-94
	11.0 µm/m-°C @Temperature -55.0 - 288 °C	6.11 µin/in-°F @Temperature -67.0 - 550 °F	X-Direction; ASTM D3386-94
	26.0 µm/m-°C @Temperature -55.0 - 288 °C	14.4 µin/in-°F @Temperature -67.0 - 550 °F	Z-Direction; ASTM D3386-94

Thermal Properties	Metric	English	Comments
Thermal Conductivity	0.500 W/m-K @Temperature 80.0 °C	3.12 BTU-in/hr-ft <sup>2</sup> -°F @Temperature 176 °F	ASTM C518
Glass Transition Temp, Tg	>= 280 °C	>= 536 °F	TGA, Condition A; IPC-TM-650 2.4.24
Decomposition Temperature	390 °C	734 °F	TGA; ASTM D3850
Flammability, UL94	V-0	V-0	pending

Electrical Properties	Metric	English	Comments
Volume Resistivity	1.00e+16 ohm-cm	1.00e+16 ohm-cm	Condition A; IPC 2.5.17.1
Surface Resistance	1.00e+15 ohm	1.00e+15 ohm	Condition A; IPC 2.5.17.1
Dielectric Constant	3.43 - 3.53	3.43 - 3.53	Clamped stripline, Z-direction; IPC-TM-650 2.5.5.5
	@Frequency 1.00e+10 Hz	@Frequency 1.00e+10 Hz	
Dielectric Strength	<= 3.66	<= 3.66	Differential Phase Length Method, Z-Direction
	@Frequency 8.00e+9 - 4.00e+10 Hz	@Frequency 8.00e+9 - 4.00e+10 Hz	
Dielectric Strength	29.7 kV/mm	755 kV/in	Z Direction; IPC-TM-650 2.5.6.2
Dissipation Factor	0.0037	0.0037	Z direction; IPC-TM-650 2.5.5.5
	@Frequency 1.00e+10 Hz	@Frequency 1.00e+10 Hz	

Descriptive Properties	Value	Comments
Dimensional Stability	< 0.5 mm/m	X, Y directions; after etch; +E2/150°C; IPC-TM-650, 2.4.39A
Thermal Coefficient of Dielectric Constant	50 ppm/°C	IPC-TM-650 2.5.5.5; -100°C to 250°C; Z-Direction

## Contact Songhan Plastic Technology Co.,Ltd.

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